

### AMENDMENTS

Please amend the claim set to read as follows:

1- 67 (previously withdrawn)

68. (Amended) A polymer matrix composition for plastics applications **comprising**  
**consisting essentially of:**

- (a) a pigment, said pigment comprising an inorganic pigmentary base that has been treated with an organo-acid phosphate compound having the formula:



wherein  $x = 1$  or  $2$ ,  
 $y = 3 - x$ , and  
R is an organic group having from 2 to 22 carbon atoms;  
and

- (b) a polymer,

**wherein said polymer matrix has an essential absence of water and an essential absence of organic solvents.**

69. (Previously introduced) The polymer matrix of claim 68, wherein said polymer is selected from the group consisting of polyethylene, copolymers of ethylene with alpha-olefins containing 4 to 12 carbon atoms, polypropylene, polycarbonates and polystyrene.

70. (Previously introduced) The polymer matrix of claim 69, wherein said polymer is polyethylene.

71. (Previously introduced) The polymer matrix of claim 68, wherein said pigment comprises 50 – 85% by weight of the polymer matrix based on the weight of the polymer matrix.

72. (Previously introduced) The polymer matrix of claim 68, wherein R is an organic ~~compound~~ group having six carbon atoms.

73. (Previously introduced) The polymer matrix of claim 68, wherein R is an organic ~~compound~~ group having eight carbon atoms.

74. (Previously introduced) The polymer matrix of claim 68, wherein R is 2-ethylhexyl-.

75. (Previously introduced) The polymer matrix of claim 68, wherein the pigmentary base is selected from the group consisting of titanium dioxide, kaolin, talc, mica and calcium carbonate.

76. (Previously introduced) The polymer matrix of claim 75, wherein the pigmentary base is titanium dioxide.

77. (Previously introduced) The polymer matrix of claim 68, wherein the amount of organo-acid phosphate compound in the pigment is from about 0.01 percent to about 5 percent by weight, based on the weight of the pigmentary base.

78. (Amended) A polymer matrix composition for plastics applications comprising ~~consisting essentially of~~:

- (a) a pigment, said pigment comprising an inorganic pigmentary base that has been treated with an organo-acid phosphate compound having the formula:



wherein  $x = 1$  or  $2$ ,  
 $y = 3 - x$ , and

R is an organic group having from 2 to 22 carbon atoms;

- (b) a polymer; and
- (c) at least one compound selected from the group consisting of metal oxides, polyalcohols and alkanolamines,

**wherein said polymer matrix has an essential absence of water and an essential absence of organic solvents.**

79. (Previously introduced) The polymer matrix of claim 78, wherein said polymer is selected from the group consisting of polyethylene, copolymers of ethylene with alpha-olefins containing 4 to 12 carbon atoms, polypropylene, polycarbonates and polystyrene.
80. (Previously introduced) The polymer matrix of claim 79, wherein said polymer is polyethylene.
81. (Previously introduced) The polymer matrix of claim 78, wherein said pigment comprises 50 – 85% by weight of the polymer matrix based on the weight of the polymer matrix.
82. (Previously introduced) The polymer matrix of claim 78, wherein R is an organic ~~compound~~ **group** having six carbon atoms.
83. (Previously introduced) The polymer matrix of claim 78, wherein R is an organic ~~compound~~ **group** having eight carbon atoms.
84. (Previously introduced) The polymer matrix of claim 78, wherein R is 2-ethylhexyl-.

85. (Previously introduced) The polymer matrix of claim 78, wherein the pigmentary base is selected from the group consisting of titanium dioxide, kaolin, talc, mica and calcium carbonate.
86. (Previously introduced) The polymer matrix of claim 85, wherein the pigmentary base is titanium dioxide.
87. (Previously introduced) The polymer matrix of claim 78, wherein the amount of organo-acid phosphate compound in the pigment is from about 0.01 percent to about 5 percent by weight, based on the weight of the pigmentary base.
88. (Previously introduced) The polymer matrix of claim 78, wherein the compound of (c) is a metal oxide and the metal oxide is selected from the group consisting of aluminum oxide, silicon dioxide and zirconium oxide.
89. (Previously introduced) The polymer matrix of claim 78, wherein the compound of (c) is a polyalcohol and the polyalcohol is selected from the group consisting of trimethylolethane and trimethylolpropane.
90. (Previously introduced) The polymer matrix of claim 78, wherein the compound of (c) is an alkanolamine.
91. (Previously introduced) The polymer matrix of claim 90, wherein the alkanolamine is triethanolamine.
92. (Amended) A polymer matrix composition for use in plastics applications **comprising** ~~consisting essentially of:~~

- (a) a pigment, said pigment comprising a titanium dioxide base that has been treated with an organo-acid phosphate compound having the formula:



wherein  $x = 1$  or  $2$ ,  
 $y = 3 - x$ , and  
R is an organic group having from 2 to 22 carbon atoms; and

- (b) polyethylene,

**wherein said polymer matrix has an essential absence of water and an essential absence of organic solvents.**

93. (Amended) A polymer matrix composition for use in plastics applications **comprising** ~~consisting essentially of:~~

- (a) a pigment, said pigment comprising a titanium dioxide base that has been treated with an organo-acid phosphate compound having the formula:



wherein  $x = 1$  or  $2$ ,  
 $y = 3 - x$ , and  
R is an organic group having from 2 to 22 carbon atoms;

- (b) polyethylene; and

- (c) at least one compound selected from the group consisting of metal oxides, polyalcohols and alkanolamines,

**wherein said polymer matrix has an essential absence of water and an essential absence of organic solvents.**

94. (Currently amended) **A polymer film comprising the** The polymer matrix of claim 92;  
~~wherein said polymer matrix forms a plastic film.~~

95. (Currently amended) **A polymer film comprising the** The polymer matrix of claim 93;  
~~wherein said polymer matrix forms a plastic film.~~

### **REMARKS**

In the above captioned application, the Examiner most recently issued an Advisory Action. In response to the Advisory Action, Applicants have amended the pending claims to make explicit what was implicit, the compositions of the pending claims have an essential absence of water and organic solvents. Because this limitation is now explicit, Applicants have removed the language “consisting essentially of” and replaced it with the term “comprising” in claims 68, 78, 92 and 93. Applicants have also replaced the term “compound” with the term “group” in claims 72, 73, 82 and 83. Further, Applicants have restructured claims 94 and 95. No new matter has been added.

Support for compositions that have an essential absence of water and organic solvents may be found throughout the specification. As the specification describes, any water or solvent that is added or generated during processing is removed prior to combining the treated pigmentary base with the polymer. *See e.g.*, p. 12, line 17 (allowing THF to evaporate). The specification describes that the treatment may be dissolved in water or an organic solvent prior to combining with the pigmentary base. *See e.g.*, page 6, lines 15 – 20 of the specification. It also notes that prior to combination of the treatment and the base, the base may, for example, be part of a filter cake or in a dried form. *See e.g.*, page 6, lines 15 -16, and examples 5 –21. After the base and the treatment are combined, essentially all solvent that may be present, as well as any water that may be present or generated, is removed. This step occurs prior to combination of the treatment and the base with the polymer. For example, when the pigmentary base is dry, removal may be accomplished by micronization. *See e.g.*, examples 5 –21. When the pigmentary base is, for example, part of a filter cake, the filter cake that has been combined with the treatment, may be dried and then subject to micronization. *See e.g.*, page 6, lines 10 -12. As persons skilled in the art are aware, these steps would remove essentially all water and organic solvent that may be present on the treated pigmentary base prior to combination of the pigmentary base with the polymer.

Further, the specification notes that the present invention is particularly advantageous for use in masterbatch applications. *See* page 8, lines 1 – 10 of the specification. As persons skilled in the art are aware, the preparation of a masterbatch application is a common practice in which two or more substances are blended together in order to blend them with other ingredients that may be the same as or different from the first two substances. In the context of thermoplastics applications, which are the subject of the examples, the presence of a solvent would be detrimental to masterbatch applications. *See* Declaration of Dr. Kostelnik, dated May 21, 2003 at ¶¶ 6–16 (previously submitted). Accordingly, a person skilled in the art would, upon reading the present disclosure, appreciate that the claimed invention is designed to be used in applications in which there is an essential absence of organic solvents and water.

Moreover, the specification notes that the treated pigments of the present invention impart greater lacing resistance to the polymers into which they are incorporated. *See e.g.*, page 8, lines 18–21. This improved resistance to lacing was measured at 625°F. *See e.g.*, page 17, lines 19–20. The presence of appreciable amounts of water or an organic solvent would impair lacing resistance, particularly at the aforementioned elevated temperature.

Therefore, based on the foregoing, the present disclosure supports the pending claims as amended.

In light of the claims as amended being explicitly directed to compositions that comprise an essential absence of water and organic solvents, it is respectfully submitted that the pending claims are patentable over the references of record. Most notably, the primary references on which the Examiner relies (DE 1234234 and Menovcik), as well as other of the references (Yaginuma and Orth-Gerber) are directed to applications that require the use of a solvent. Thus, these references, either alone or in combination with the other cited art do not suggest the compositions of the present invention.

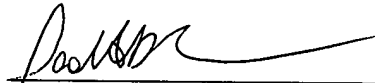


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Application Serial No.: 09/723,098  
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Page 10

Further, as described in the previously submitted declaration of Dr. Kostelnik, the inclusion of a solvent in the compositions of the present invention would fundamentally alter the characteristics of the present invention by yielding a product that contains a solvent and could not be used for thermoplastics applications. Thus, a person skilled in the art would not be motivated to combine the cited references in the manner in which the Examiner proposed to combine them. Accordingly, Applicants submit that the claims are in condition for allowance.

If any fee other than the enclosed fees is required, or an overpayment has been made, the United States Patent and Trademark Office is hereby authorized to charge or credit Deposit Account Number 11-071 for such sum.

Respectfully submitted,



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